

Dynamic Thresholding Binarization Library


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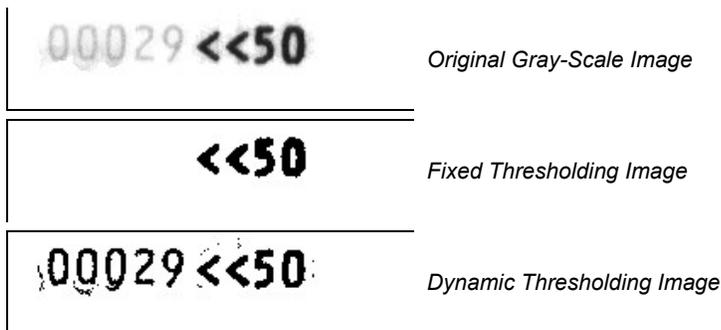
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This library allows you to convert 256 gray-levels images into monochrome ones using Dynamic Thresholding.

This means that threshold value for binarizing image is not fixed but it is dynamic. It's calculated to be independent from changes both in foreground darkness and in background lightness and in illumination level.

By adjusting contrast levels automatically, Dynamic Thresholding increases the accuracy of low-contrast documents containing hand-written or typed characters with variable lines thickness and darkness:



Considering these variations the system adjusts the threshold value automatically, allowing the image to preserve light foreground details and to eliminate dark background zones in a smart way. The final result is an optimal monochrome image suitable for better visualization, better compression, better optical character recognition and better automatic vectorization.

No operator's intervention is required for manual threshold adjustments!

With this library you can have better results than the ones reached using an image scanner with an expensive hardware board supporting dynamic thresholding.

Using this software, the advantages are evident:

- **Hardware independence:**
You can use every image scanner for acquiring your gray-level images
- **Batch processing:**
You can convert gray-level images off-line and not only during scanning process
- **Specific zone conversion:**
You can extract and convert only a specific area of the image, i.e. for ICR/ICR
- **Two images in one:**
You can derive from gray-scale image the perfect monochrome image version in every moment
- **Investment protection:**
When you buy a new image scanner you don't need to buy a dynamic thresholding board

The library can be used by any 32 bit **programming language supporting DLL**: C / C++, Visual Basic, Delphi, etc...

This is a sample "C" source code fragment showing how it's easy to use this library:

```

long ProcessMyGrayDIB(long GrayDIB)
{
    // Declare local variables
    long Session,Error,MonoDIB;

    // Init the library
    Error=DT_Init("YourCompanyName","YourPassword",
        &Session);

    // Check if any error occurred
    if (Error!=DT_OK)
    {
        // Perform the dynamic thresholding
        Error=DT_Execute(Session, GrayDIB, &MonoDIB);

        // Check if any error occurred
        if (Error!=DT_OK)
        {
            // =====
            // Add here your code to use the mono image
            // =====

            // Free the monochrome DIB handle
            GlobalFree(MonoDIB);
        }
        // Deinitialize the library
        DT_Done(Session);
    }
    return (Error);
}

```

Thresholding and Binarization

When you need to binarize a gray-levels image, you need to select a threshold value, because gray values range is from 0 to 255: pixels lower than this value are considered background (paper) and pixels higher than this value are considered foreground (text and graphic elements).

Using our software you can choose any kind of existing binarization algorithms:

- **Fixed Thresholding:** this systems usually uses 127 as default threshold value, but you could change this value and obtain darker or lighter images. This threshold value is used for all the pixels in the image. In this system the parameter you can set is obviously the threshold.
- **Auto Thresholding:** this system uses the same threshold value for all the pixels of the image; this value is not fixed manually but it's chosen in automatic mode, analyzing the image and choosing the "best" value. The last one can be found with several methods, based on different mathematical formulas, so in this process the parameter you can set is the type of algorithm you want to use in the auto thresholding.
- **Dynamic Thresholding:** this system uses a different threshold value for each pixel of the image. This value is selected automatically, analyzing the sub-image area around each pixel and finding the local contrast. If the contrast of this area is low, the pixel is binarized using a global pre-calculated threshold value, otherwise, when the contrast is high, the local threshold value is calculated and used. The parameters you can set are the sub-image area size and the local contrast limit or, alternatively, a unique value of aggressiveness.
- **Advanced Dynamic Thresholding:** this system is an evolution of dynamic thresholding; no parameter is required because the software automatically finds the best solution making several attempts and preserving a larger number of details in the image. This system is usually slower than others and it's suitable for small images.

Our **dynamic thresholding** binarization technology is also used in our new exciting product [PerfectScan®](#), a very special TWAIN driver, and in [Recogniform Interactive Zonal Thresholder](#).

Price & Ordering Info

The price for this product is **EUR 500,00**.

You can [order on-line in our e-commerce store](#) or using our [contacts us](#).

Evaluation Version

[Click here to download an evaluation application \(620 KB\)](#)

You can download an evaluation version of this product for [Visual Basic](#), [Visual C++](#) or [Delphi](#)

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